**PROJECT INFORMATION**

The Wisconsin Department of Transportation (WisDOT) is proposing an expansion of County TT, locally known as Meadowbrook Road (north of Summit Avenue/WIS 18) and Merrill Hills Road (south of Summit Avenue), to a four-lane divided roadway on the west side of the City of Waukesha in Waukesha County (Figure 1). The project area is located in ***T6N, R19E, Sections 5, 6, 7, 8 and 17 and T7N, R19E, Sections 29, 30, 31, and 32.*** Termini for the 5-mile project are I-94 on the north and the intersection of WIS 59 and County X on the south. The project includes parts of the ***City of Waukesha, the City of Pewaukee, and the Town of Waukesha.***

The West Waukesha Bypass corridor study began under the **Project I.D. 2788-01-00**.

* ***North of Rolling Ridge Drive***, Meadowbrook Road is already a four-lane divided road and ***will not*** be reconstructed as part of this project.
* **Meadowbrook Road** will be reconstructed from the Rolling Ridge Drive intersection to Summit Avenue.
* ***South of Summit Avenue***, Merrill Hills Road ***will be reconstructed*** to Madison Street.
* ***South of Madison Street***, a roadway ***will be constructed on new alignment*** to the intersection of WIS 59 and County X (Figure 2).
* The ***segment of Meadowbrook Road and Merrill Hills Road to be reconstructe*d** is a two-lane undivided road.

***Project*** - COE 404 Permit Applications

Information in this application is based on ***60 percent design plans*** Waukesha County completed for the entire corridor. Final design will begin while this application is being reviewed.

***Changes in impacts to Waters of the U.S. (as a result of Final design) will be coordinated with the Army Corps of Engineers (COE)***.

**Three construction projects are proposed along the 5-mile project corridor**.

City of Waukesha

* Will finalize design/reconstruction of ***Meadowbrook Road (between Rolling Ridge Drive and Northview Road)***. The City has no federal funds associated with final design and construction of their Project, so they have ***no assigned WisDOT Project I.D.***
* Construction of the city’s segment is scheduled to begin in early 2016.

Waukesha County

* Will finalize design/reconstruction of the ***Meadowbrook Road and Merrill Hills Road*** segment **(*between Northview Road and Kisdon Hill Drive)***. It should be noted that the Kisdon Hill Drive to Summit Avenue design and construction projects have been given different WisDOT I.D. numbers than the Summit Avenue to Northview Road design and reconstruction.
* Design I.D.’s **2788-00-02 & 2788-02-00, Construction I.D.’s 2788-00-72 & 2788-02-70**
* Construction is scheduled to begin in early 2016.

Wisconsin DOT

* Will finalize design/reconstruction of the ***Kisdon Hill Drive to the south project terminus*** segment.
* Design project I.D. **2788-00-01, Construction project I.D. 2788-00-71.**
* Construction is scheduled to begin in fall 2016.

***Waters of the U.S. Impacts/Type of Permits*** - The City of Waukesha, Waukesha County and Wisconsin DOT Construction projects have different levels of impacts on Waters of the U.S. that require different Section 404 permits from the Army Corps of Engineers.

This application, where relevant in text or table, will provide information by referencing the separate construction project ID’s, in an effort to clarify and to segregate both impacts related to the entire project (as described in the Final Environmental Impact Statement – Final FEIS), and impacts associated with individual construction projects.

It is anticipated that fewer impacts to wetlands/Waters of the U.S. for the City of Waukesha and Waukesha County construction projects, will result in issuance of a regulatory General Permit (GP) issued by the COE prior to construction. The higher level of wetland/Waters of the U.S. impacts in the WisDOT segment requires an Individual Permit (IP).

The ***City of Waukesha***, lacking federal funds for construction, will independently apply to the COE for a separate 404 permit prior to construction of their Project. In addition to the reconstruction of Meadowbrook Road, the City is also proposing a flood mitigation project. The proposed mitigation improvement would incorporate a new 60-inch storm sewer pipe in Meadowbrook Road from the Woodbridge Lane intersection south to Lancaster Drive, then east on Lancaster Drive to a stormwater detention pond to be constructed in the undeveloped city park in the northeast quadrant of the Northview Road/Meadowbrook Road intersection. The proposed project would be constructed concurrent with the Meadowbrook Road reconstruction to minimize disturbance to adjacent neighborhoods.

The existing stormwater runoff that drains to the Pewaukee Lake watershed will be maintained as part of this project, with the proposed 60-inch pipe providing additional conveyance south in larger storm events. This would entail construction of a detention basin on the undeveloped city park. SEWRPC is delineating wetlands in the undeveloped park. Wetland avoidance and minimization efforts will be conducted as part of the project’s design phase.

This application provides details about the flood mitigation project available at the time this application is being prepared for submittal. Additional information will be provided in the City of Waukesha’s separate COE 404 permit application.

**PURPOSE AND NEED**

This section summarizes the Purpose and Need for the West Waukesha Bypass and the City of Waukesha’s flood mitigation project described in the Project Information section. The complete Purpose and Need Statement for the West Waukesha Bypass can be found in Section 1 of the project’s 2014 Final EIS.

**PURPOSE of the proposed West Waukesha Bypass is to:**

* Provide a safe and efficient north-south arterial roadway on the west side of the City of Waukesha to finalize the long-planned circumferential route around Waukesha.
* The proposed route would ***not only accommodate growing traffic volumes*** along the corridor; but would also ***address*** and improve roadway ***deficiencies*** - ***tight curvatures, steep hills, narrow lanes, and lack of roadway shoulders.***

**NEEDS for the project include:**

* Traffic demands, safety concerns, existing roadway deficiencies, system linkage, project history, and regional/local transportation and land-use planning.
* Project needs that factor most heavily into the proposed improvements to County TT, (that will affect wetlands and other waters of the U.S.) are **t*raffic demand, safety concerns, and existing roadway deficiencies***. These primary three need factors are summarized below.

**Traffic Demand**

Study area traffic information in the Final EIS was obtained from WisDOT counts and SEWRPC’s regional traffic model which considers existing and planned land use and development trends. Highlights of Waukesha County’s and WisDOT’s traffic analysis include the following:

* Traffic volumes on County TT for 2035 would be 23 to 56 percent higher than 2009 volumes (Table 1).
* Existing traffic along County TT ranges from 8,320 to 14,830 vehicles per day (vpd) and is expected to reach 13,000 to 20,000 vpd in 2035.
* The ***highest existing volumes along County TT are between Northview Road and Summit Avenue***

|  |  |  |  |
| --- | --- | --- | --- |
| *Table 1 -* *Existing and Design Year Traffic Comparison* | | | |
| Roadway Segment | Existing Traffic 2009 AADT (vpd) | Future Traffic 2035 AADT (No Build) (vpd) | % Increase (2009–2035) |
| Silvernail Road–Northview Road | 14,590 | 18,000–20,000 | 23–37 |
| Northview Road–Summit Avenue | 14,830 | 19,000 | 28 |
| Summit Avenue–Madison Street | 12,430 | 16,000 | 29 |
| Madison Street–MacArthur Road | 11,750 | 15,000 | 28 |
| MacArthur Road–Sunset Drive | 8,320 | 13,000 | 56 |
| Sunset Drive: County TT to County X | 12,760 | 18,000 | 41 |
| County X: Sunset Drive to WIS 59 | 24,850 | 29,000 | 17 |

* ***Trucks account for 6-8 percent of the traffic volume in the study corridor.*** Truck traffic varies from 1,140/day at the north end of the project to 1,565/day at the south end. In 2035, truck volumes are expected to increase to 1,330 trucks/day at north end of the corridor (a 17% increase) and 1,830/day at the south end (a 17% increase).
* Level of service (LOS) measures a road’s ability to handle traffic demand; it is measured on an “A” to “F” scale with “A” being free-flow traffic and “F” being stop and go. WisDOT standards recommend no worse than a midrange LOS D for suburban/urban areas (like the project). If County TT were not expanded, Rolling Ridge Drive to Summit Avenue would degrade to LOS E by 2035; also, the Summit Avenue to Madison Street segment would be nearly LOS E. In addition, between Madison Street and MacArthur Road, County TT would fail to reach mid-level LOS D in 2035. County TT intersections with Summit Avenue and Madison Street would operate at LOS F in 2035.

**Safety**

***Highway safety is measured by the frequency (number) and severity of crashes (traffic volumes and roadway deficiencies can contribute to a road’s crash rate)***. Highlights of the safety analysis include the following:

* ***Over a 7-year period (2007-2013) there were 500 crashes in the study area.*** Of that total, 379 involved property damages, 120 were injury related, and 1 fatality. In 2014, a second fatality occurred on County TT.
* ***Study area crash rates exceeded statewide average rates for similar roads on every segment*** ***except between Rolling Ridge Drive and Summit Avenue***. (**bold** numbers in Table 2). Waukesha County updated crash severity summaries (within the study area) in 2014 to determine if crash numbers and severity were comparable to 2007- 2009 crash data. ***Both number and severity of crashes are relatively consistent across all the years***.

|  |  |  |  |
| --- | --- | --- | --- |
| *Table 2 -* *Total Crash Rates 2007–2009 excluding deer (per 100 million vehicle miles)* | | | |
| Segment | 2007–2009  Total Crashes | Segment Crash Rate | 2008 Statewide Crash Rate |
| County TT: Rolling Ridge Drive to Summit Avenue | 37 | 135 | 160 |
| County TT: Summit Avenue to Sunset Drive | 70 | **257** | 160 |
| Merrill Hills Rd: Sunset Drive to WIS 59 | 6 | **304** | 257 |
| Sunset Drive: County TT to County X | 64 | **415** | 160 |
| County X: Sunset Drive to WIS 59 | 43 | **226** | 160 |

### Roadway Characteristics and Deficiencies

Roadway deficiencies in the study area contributing to the crash rates include:

* **Four substandard horizontal curves**. Substandard curves are more difficult to negotiate safely without reducing speed
* **19 hills along the corridor exceed the maximum preferred grade of 5 percent**
* **17 of those hills do not meet the recommended design speed**
* ***10 hills on County TT (exceeding recommended maximum grade) have crash rates that exceed the statewide average rate***
* **Numerous locations along the corridor fail to meet minimum guidelines for stopping sight distance.**
* **Locations with substandard stopping sight distance on County TT** (between Summit Avenue and Sunset Drive) **do not meet the recommended design speed and exceed the statewide crash rate**

**PURPOSE OF THE PROPOSED CITY OF WAUKESHA FLOOD MITIGATION PROJECT**

The City of Waukesha has developed a comprehensive stormwater management plan that addresses areas of known flooding and presents plans for mitigation. The study has identified areas where stormwater flooding is occurring city-wide, evaluated areas where improvements to the existing stormwater infrastructure would mitigate the impact of the flooding, evaluated causes of stormwater flooding city-wide, and evaluated improvement alternatives to the stormwater infrastructure to mitigate flooding impacts. The project activities described in the Project Information section would address flooding issues identified in the city’s stormwater management plan.

**COMPARISON OF ALTERNATIVES**

As part of developing the West Waukesha Bypass EIS, Waukesha County, WisDOT, and FHWA conducted an Alternatives Analysis to identify the alternative that would address project need while avoiding or minimizing impacts to Waters of the U.S. to the extent practicable. The alternatives being evaluated were presented to the public and were assessed to determine their environmental impacts. The alternatives analysis, which is documented in detail in Section 2 of the project’s Final EIS, determined that there is no practicable alternative to discharging fill into the wetlands and other Waters of the U.S. with the preferred alternative. This subsection summarizes the alternatives analysis, including the reasons why alternatives were eliminated.

The initial range of alternatives considered includes the following:

* **No-Build Alternative—**No safety or capacity improvements; only maintenance and minor improvements would be proposed. This alternative serves as a baseline for comparison to the build alternatives.
* **Transportation Demand Management—**This alternative strives to reduce number of auto trips through increased transit ridership and other strategies.
* **Transportation System Management—**Alternative includes measures (such as signal coordination and intersection improvements) to maximize efficiency and usage of the highway system to in an effort to alleviate or postpone the need for capacity expansion.
* **Build Alternatives--**Preliminary range of alternatives developed in the context of regional transportation plans: to include various forms of community involvement, and public informational meetings. These alternatives were grouped into three corridors, from E to W (**Figure 3**):
  + **County T Corridor** (County T/ Grandview Boulevard/Moreland Boulevard/ Genesee Road) — the alignment would utilize existing streets to connect I-94 and WIS 59.
  + **County TT Corridor—** For decades, this corridor has been the focus for planning the West Waukesha Bypass. Waukesha County and the public developed three alternatives in this corridor (TT1, TT2, TT3). All would utilize the County TT alignment between I-94 and Summit Avenue.
  + **County SS Corridor—** A new roadway would extend south from the County SS Interchange with I-94. Waukesha County developed four alternatives in the County SS corridor (SS1, SS2, SS3, SS4).

South of the Wisconsin & Southern Railroad, most County TT and County SS corridor alternatives have multiple connections to the WIS 59/ County X intersection (**Figure 3**). See below.

* **Far West Alternative—**The Far West Alternative would follow Town Line Road from Sunset Drive to WIS 59. WIS 59 would be improved from Town Line Road to County X.
* **Long D-X Alternative—** The Long D-X Alternative would follow Sunset Drive (County D) from Town Line Road to County X, than follow County X to the WIS 59/County X intersection.
* **Golf Course West Alternative—**The Golf Course West Alternative would be on new alignment from the RR to WIS 59, passing between Merrill Hills Country Club and a subdivision west of the golf course. WIS 59 would be improved between an intersection with the new road and County X.
* **Golf Course East Alternative—**The Golf Course East Alternative would follow Merrill Hills Road from Sunset Drive to WIS 59 and WIS 59 from Merrill Hills Road to County X.
* **USEPA Far West Alternative—** The USEPA Far West Alternatives follow the same alignment - they bisect Waukesha School District property and cross a large wetland complex associated with Pebble Creek north of the railroad tracks. These alternatives require a new crossing of the Glacial Drumlin State Trail and the Wisconsin & Southern Railroad. Between the railroad crossing and Sunset Drive in the Town of Genesee, the three alternatives diverge.
* **Corps of Engineers Alternative——** In summer of 2011, the Corps of Engineers suggested an alternative that could be used with TT3; this alternative would follow the Golf Course West alignment from the railroad to Sunset Drive. At Sunset Drive the alignment turns east and follows Sunset Drive to County X. This alternative could intersect Sunset Drive at a T-intersection, or a curvature installed to provide free-flow movement of traffic.
* **Sunset-to-County X Alternative—**The Sunset-to-County X Alternative would cross a farm field on new alignment south of the Wisconsin & Southern Railroad before tying into Sunset Drive near the Pebble Creek crossing. From there it follows Sunset Drive and County X to the County X/WIS 59 intersection (**Figure 4**).
* **Pebble Creek Alternative—**The Pebble Creek Alternative follows the mapped Waukesha bypass route in regional, county and city plans. It would cross wetlands, floodplain, and primary environmental corridor between Sunset Drive and the County X/WIS 59 intersection (**Figure 4**).

***Three sub alternatives were developed***: the Pebble Creek Mapped Route, Pebble Creek West, and Pebble Creek Far West (**Figure 5**). South of the Wisconsin & Southern Railroad, the Pebble Creek Alternatives would: sever a farm in the northeast quadrant of the Merrill Hills Road/Sunset Drive intersection, cross Sunset Drive and use the Pebble Creek corridor to reach the WIS 59/County X intersection. The Pebble Creek Mapped Route is aligned farther east (closer to Pebble Creek and its wetland complex) than the other two sub alternatives (which are aligned at the west edge of primary environmental corridor on the farm north of Sunset Drive and west of the Pebble Creek wetland complex south of Sunset Drive.)

**Initial Screening of Alternatives**

The initial range of alternatives were evaluated and screened in terms of meeting the purpose and need. Also evaluated were: construction costs; input from local governments, resource agencies, the CSS advisory group, and public information meetings; and minimization of impacts to natural and built environments.

**No-Build Alternative**

* Minimal environmental effects and construction cost.
* Fails to address project purpose and need with respect to safety concerns, existing highway deficiencies, and future traffic demand.
* Not a feasible alternative, but serves as a baseline for comparison to Build Alternatives.

**Transportation Demand Management Alternative**

* Minimizes environmental impacts and costs less than the Build Alternatives
* Fails to address project purpose and need
* Not a reasonable alternative; eliminated from consideration as a stand-alone alternative.

**Transportation System Management Alternative**

* Minimizes environmental impacts and costs less than the Build Alternatives
* Fails to fully address project purpose and need
* Not a reasonable alternative; eliminated from consideration as a stand-alone alternative.

**Build Alternatives**

The screening of the initial Build Alternatives north of the Wisconsin & Southern Railroad are summarized in Table 3; screening of the initial “connector” alternatives south of the RR are summarized in Table 4.

***TABLE 3 - Evaluation of Initial Build Alternatives North of Wisconsin & Southern Railroad***

|  |  |  |  |
| --- | --- | --- | --- |
| **Segment** | **Alternatives** | **Retained/ Eliminated** | **Key Reasons for Elimination** |
| County SS Corridor | SS1, SS2, SS3, SS4 | Eliminated | Farmland, wetland, Retzer Nature Center, and displacement impacts, inconsistent with regional planning or local ROW preservation; would not prevent a need to add capacity to County TT. |
| County T Corridor | T1 | Eliminated | Would not prevent the need to add capacity to County TT, inconsistent with regional and local planning, residential displacements |
| County TT Corridor | TT1 | Eliminated | Would require relocating segments of Pebble Creek south of Madison Street |
| County TT Corridor | TT2 | Retained |  |
| County TT Corridor | TT3 | Eliminated | Much increased wetland impacts south of the RR; DNR opposed new crossing of cold water segment of Pebble Creek ; greater impacts to School District parcel W of Co. TT |

| ***TABLE 4 - Evaluation of Initial Connector Alternatives South of Wisconsin & Southern Railroad*** | | |
| --- | --- | --- |
| Alternative | Retained or Eliminated | Key Reasons for Elimination |
| Far West Alternative | Eliminated | Elimination of the County SS1 alternative; most residential displacements of south alignments. |
| Long D/X Alternative | Eliminated | Elimination of the County SS1 alternative; high environmental corridor and floodplain impact |
| Golf Course West Alternative | Eliminated | Elimination of County SS, County TT1, and County TT3 alternatives; high number of residential displacements; majority new ROW required |
| Golf Course East | Retained |  |
| USEPA Far West Alternative | Eliminated | Bisects School District property; new crossing of Glacial Drumlin State Trail and RR; affects wetland complex adjacent to Pebble Creek and wetlands near WIS 59 |
| Corps Engineer Alternative | Eliminated | Impacts to wetland and primary environmental corridor north of the RR. Requires a new crossing of Pebble Creek |
| Sunset-County X Alternative | Retained |  |
| Pebble Creek Far West & West Alternative | Retained |  |
| Pebble Creek originally mapped Alternative | Eliminated | Greatest natural resource impacts of Pebble Creek Alternatives. 21 acres of wetland impacts between railroad and WIS 59 |

**Further Development and Refinement of Alternatives**

Following the process of narrowing of County T, County TT, and County SS alternatives down to Alternative TT2 and three connecting routes (Golf Course East Alternative, Pebble Creek Alternatives, Sunset-to-County X Alternative) south of the Wisconsin & Southern Railroad (**Figure 6**), Waukesha County further evaluated 2- and 4-lane roadway cross sections. They then focused on which options would meet project purpose and need while minimizing environmental impacts to the extent practicable.

***Four cross sections were evaluated for Alternative TT2 and the three connecting alternatives:***

* 2-lane on existing alignment alternative with limited intersection improvements (following existing County TT and Sunset Drive) 2-lane on existing alignment alternative with full intersection improvements (following existing County TT and Sunset Drive)
* 2-lane off-alignment alternative with full intersection improvements (following mapped bypass route)
* 4-lane off-alignment alternative (following mapped bypass route)

***In addition to the 2-lane and 4-lane cross section alternatives, Waukesha County evaluated a 2-lane alternative referred to as the No.Build.Improve Alternative*.** This alternative is similar to the 2-lane alternatives developed by Waukesha County, but is treated as a separate alternative.

***All 2-lane cross section alternatives, including the No.Build.Improve Alternative, with Alternative TT2 and the remaining connectors south of the Wisconsin & Southern Rail were eliminated from further consideration*** because they would not provide enough capacity for forecast (2035) traffic volumes, and the 2-lane alternatives were determined to be less safe than 4-lane cross section. The 4-lane cross section was retained for further evaluation.

**Additional Screening of Alternatives South of Wisconsin & Southern Railroad**

At the start of the final screening step, the 4-lane divided Golf Course East Alternative, Sunset-to-County X Alternative, the Pebble Creek West Alternative, and the Pebble Creek Far West Alternative remained under consideration. Below is a summary of the screening decisions that lead to the selection of the Pebble Creek West Alternative as the preferred alternative.

***Golf Course East Alternative***

The Golf Course East Alternative included an option to widen along the east side of Merrill Hills Road to avoid Merrill Hills Country Club, and an option to widen into the Country Club to minimize impacts on residences on the east side of the road. This alternative would have the least impact on natural resources, however, it was eliminated from consideration due to the high number of residential displacements (7 or 12 with the west option, 12 with the east option), neighborhood impacts, potential displacement of Merrill Hills Country Club, impact to a potential historic property, $13 million to $15 million higher cost, and inconsistency with local and regional plans.

***Sunset-to-County X Alternative***

Waukesha County and WisDOT eliminated the Sunset-to-County X Alternative because of its transportation, socioeconomic, and environmental impacts summarized below.

* The road safety audit determined the Sunset-to-County X Alternative would have a 14 percent higher risk of crashes than the Pebble Creek Alternatives because of the additional turning movements at the Sunset Drive/County X intersection and the proposed Sunset Drive/Merrill Hills Road intersection.
* Displace 7 residences south of the Wisconsin & Southern Railroad
* Create a noise impact at about 15 residences south of the Wisconsin & Southern Railroad.
* Acquire 2.4 acres from the City of Waukesha’s Pebble Creek Park and 1.8 acres of Waukesha County’s Pebble Creek Greenway.
* Eliminate a 0.2-acre population of state threatened seaside crowfoot.

***Pebble Creek Far West Alternative***

|  |  |
| --- | --- |
| ***The Pebble Creek Far West Alternative, which joins the Pebble Creek West Alternative at the Hawthorne Hollow Drive cul-de-sac, shares most of the characteristics of the Pebble Creek West Alternative.***  ***Distinguishing differences between the two alternatives are impacts to wetlands and impacts to upland forest.*** The ***Pebble Creek Far West Alternative has 4.8 acres of wetland impacts as compared to the 9.4 acres with the Pebble Creek West Alternative. Each wetland would affect nine wetlands all of which are ADID*** (Table 5). Being located higher on the slope than the Pebble Creek West Alternative, the ***Pebble Creek Far West Alternative would require a 25-foot cut immediately south of Sunset Drive and affect more upland forest (U-18 [NW]) within the primary environmental corridor (9.7 acres) than the Pebble Creek West Alternative (4.1 acres).*** |  |

*While the Pebble Creek Far West Alternative would affect fewer acres of wetland than the Pebble Creek West Alternative south of the Wisconsin & Southern Railroad (4.8 acres vs. 9.4 acres) and have less impact on the wetland 8 fen (0.02 acre vs. 0.35 acre) about 2.4 acres of the 4.6-acre wetland impact difference is to low quality farmed wetlands north of Sunset Drive,* and it is likely that the unaffected portion of wetland 8 will continue to function as a fen.

| ***Table 5 – Wetland Impacts Summary*** | | | |
| --- | --- | --- | --- |
|  | | **Alternatives** | |
| Functional Value | Wetland Type | Pebble Creek West (acre) | Pebble Creek Far West (acre) |
| W-13 (ADID wetland). No functional value rated as high. | Atypical (farmed) wetland | 1.2 | 0.7 |
| W-12 (ADID wetland). No functional value rated as high. | Fresh (Wet) Meadow and atypical (farmed) wetland | 2.5 | 0.6 |
| W-11 (ADID wetland). Floral diversity, wildlife habitat, fishery habitat, stormwater attenuation, water quality protection, groundwater, and aesthetic, recreation, and education rated as high. | Shallow Marsh, Southern Sedge Meadow, Fresh (Wet) Meadow, Wet-Mesic Prairie, Shrub-Carr (willow thicket) and second growth Southern Wet to Wet-Mesic Lowland Hardwoods | 0.9 | 0.4 |
| W-9 (ADID wetland). Floral diversity, wildlife habitat, fishery habitat, water quality protection, and groundwater rated as high. | Southern Sedge Meadow, Fresh (Wet) Meadow, Shrub-Carr, and second growth, Southern Wet to Wet-Mesic Lowland Hardwoods | 1.0 | 0.5 |
| W-8 (ADID wetland). Groundwater rated as high. | Sedge Fen and second growth Southern Wet to Wet-Mesic Lowland Hardwoods | 0.4 | less than 0.05 |
| W-7 (ADID wetland). Groundwater rated as high. | Fresh (Wet) Meadow, Shrub-Carr (willow thicket), and second growth, Southern Wet to Wet-Mesic Lowland Hardwoods | 0.2 |  |
| W-6 (ADID wetland). No functional value rated as high. | Second growth Southern Wet to Wet-Mesic Lowland Hardwoods |  | Less than 0.05 |
| W-5 (ADID wetland). No functional value rated as high. | Second growth Southern Wet to Wet-Mesic Lowland Hardwoods | 0.3 | 0.2 |
| W-4 (ADID wetland). Floral diversity, wildlife habitat, fishery habitat, water quality protection, groundwater rated as high. | Shallow Marsh, Southern Sedge Meadow, atypical (mowed) wetland, Fresh (Wet) Meadow, and second growth Southern Wet to Wet-Mesic Lowland Hardwoods | 1.1 | 1.1 |
| W-1(ADID wetland). Wildlife habitat, fishery habitat, water quality protection, groundwater rated as high. | Shallow Marsh, Fresh (Wet) Meadow, Shrub-Carr, and second growth Southern Wet to Wet-Mesic Lowland Hardwoods | 1.8 | 1.3 |
| **Total** |  | **9.4** | **4.8** |

Based on the reports, surveys and studies by ornithologists, arborists, and wetland biologists from the DNR, SEWRPC, consultants and other agencies both wetland 8 (the fen) and forest interior habitat are important resources.  According to SEWRPC, wetland 8 is of medium/low quality, whereas according to Wisconsin Department of Natural Resources, the adjacent upland hardwood forest is of an exceptionally high quality.  In DNR’s memo concurring with SEWRPC’s findings of the importance of interior forest habitat in general and the high quality interior forest habitat within the Pebble Creek Far West Alternative, it states “the forest interior habitat is especially valuable because of its proximity to Pebble Creek and sustains Red- Headed Woodpecker *Melanerpes erythrocephalus,* a State of Wisconsin Special  Concern species, and Pileated Woodpecker *Dryocopus pileatus,* a spring/fall migrant species within the Waukesha urbanized area.”  The Pebble Creek West Alternative will allow both wetland 8 (the fen) and the forest interior habitat to remain viable.  The roadway profile for the Pebble Creek West Alternative has been placed such that construction will not interfere with groundwater near wetland 8.  This will allow groundwater to continue to maintain function of the unaffected portion of the fen.  Therefore the Pebble Creek West Alternative minimized the impacts to the medium/low quality fen and retains a high quality upland interior forest bird habitat.  In contrast, the Pebble Creek Far West Alternative reduces the impacts to this fen but will eliminate the interior forest bird habitat, which would be a significant adverse effect.

***Just south of Sunset Drive is the large upland hardwood forest that is part of a primary environmental corridor.*** SEWRPC assessed the upland forest in September 2013 and characterized it as second growth southern dry-mesic hardwood. SEWRPC identified 17 species of native hardwood in the corridor that would be affected by the Pebble Creek West and Far West alternatives, including four oak species, ash, sugar maple, elm, two hickory species, black walnut and white cedar. Overall, ***93 plant species were identified. Twenty-two percent of the plant species are non-native. The upland woods provide a buffer for the adjacent Pebble Creek wetland complex and habitat for a range of mammals and herptiles.***

According to DNR forestry staff this is an exceptionally high quality woods that has been actively managed (brush removal, tree planting, selective cutting) by the owner for the *past 20 years in the DNR’s Managed Forest Lands Program*. ***The upland forest is valuable from the DNR forestry management perspective not only because of the quality of the woodlands, but also because of the relative scarcity of such woodlands in the Pebble Creek Watershed.***

SEWRPC also mapped the interior forest habitat of U-18(NW) in September 2013. Forest interior habitat is defined as that portion of the forest canopy 300 feet or more from the forest’s edge with 70 percent or more forest cover and an essentially closed canopy. Some bird species are particularly sensitive to this interior forest habitat, including interior forest breeding birds. ***Twenty-four interior forest breeding birds have been confirmed or listed as probable in southeast Wisconsin, including one endangered, three threatened and two special concern species. Thirty-one bird species were heard or observed during the September 2013 field visit. There is a 1.3-acre interior forest habitat in U-18(NW). The state special concern red-headed woodpecker was observed in this woods in September 2013.***

Interior forest habitat is important because there is less likelihood of cowbirds preying on the nests of song birds in the forest interior. Interior forest breeding birds have declined over the past 40-50 years. Many factors have contributed to the decline, including cowbird nest parasitism and buckthorn invasions, however the loss and fragmentation of forests appears to be the major factor.

While larger forest interior areas are more likely to support interior nesting birds, SEWRPC’s November 2013 assessment of the importance of interior forest habitat found that ***smaller forest interior fragments, even as small as 0.5 acre, provide important foraging habitat and refuge for migrating interior forest birds.*** Small interior forest fragments become particularly important in southeast Wisconsin where interior forest habitat is limited. The interior forest bird breeding habitat south of Sunset Drive is one of two such stands in the study area, totaling about 3 acres. There are 21 such stands in the Pebble Creek watershed, totaling 76 aces (SEWRPC 2013).

Because the Pebble Creek Far West Alternative would be located higher on the wooded slope than the Pebble Creek West Alternative and would require a cut up to 25 feet deep and extending upslope for 300 feet. Large retaining walls would be required with the alternative to maintain the integrity of the cut slope. As a result of the deep cut and associated side slope, ***the Pebble Creek Far West Alternative would affect 9.7 acres of the primary environmental corridor woodland and result in the loss of 94 percent of the interior forest habitat.*** Less than 0.1 acre of forest interior habitat would remain. The Pebble Creek West Alternative would impact 4.1 acres of primary environmental corridor woodland west of Pebble Creek south of Sunset Drive. The Pebble Creek West Alternative would directly impact a small area of the interior forest habitat, and it would bring about one acre of the 1.3-acre interior forest habitat within 300 feet of the forest edge, reducing its value as songbird nesting habitat. Minimization measures would restore the remaining interior forest area to about 0.5 acre, noted by SEWRPC as the smallest area that can provide habitat for interior forest birds.

The value of interior forest habitat that would be lost with the Pebble Creek Far West Alternative, coupled with the relative similarity between the Pebble Creek West and Far West alternatives in impacts to ADID wetlands led Waukesha County and WisDOT to select the Pebble Creek West Alternative as the preferred alternative rather than the Far West Alternative. Remnant interior forest habitat stands such as the one along the Pebble Creek Far West Alternative that are located within the urban-agricultural matrix of the Lake Michigan migratory bird flyway are particularly important to resident and migratory bird species.

On May 5, 2014, the COE concurred with Pebble Creek West as the preferred alternative, noting the Pebble Creek West Alternative represents the agency’s least environmentally damaging practicable alternative. The USEPA provided their concurrence on May 7, 2014.

**DESCRIPTION OF PROPOSED ACTIVITY**

Waukesha County and WisDOT are proposing to expand County TT from a 2-lane road to a 4-lane divided roadway between I-94 and the WIS 59/County X intersection. General improvement concepts include the following:

* Construct two additional lanes and a median on Meadowbrook Road and Merrill Hills Road between the Rolling Ridge Drive and Madison Street. County TT is a 4-lane divided road between I-94 and Rolling Ridge Drive and will not be reconstructed.
* Between Madison Street and the Wisconsin & Southern Railroad, construct a 4-lane divided road on new alignment to minimize driveway connections and residential impacts along existing Merrill Hills Road south of Kame Terrace.
* Construct a 4-lane divided road between the railroad and the WIS 59/County X intersection on new alignment. South of Sunset Drive, the new alignment would be routed through the Pebble Creek corridor west of Pebble Creek
* Reconstruct existing intersections along Meadowbrook Road and Merrill Hills Road to improve traffic operations and safety, and construct new intersections along the new alignment segment.
* Extend the existing bicycle and pedestrian path on the east side of Meadowbrook Road north of Summit Avenue to Sunset Drive. Extend the sidewalk on the west side of Meadowbrook Road north of Northview Road to Kame Terrace

As noted, the West Waukesha Bypass project is being designed and constructed in three segments, Rolling Ridge Drive to Northview Road (City of Waukesha), Northview Road to Summit Avenue (Waukesha County), and south Summit Avenue to the WIS 59/County X intersection (WisDOT). The city and county projects are scheduled to begin construction in 2016. The WisDOT project is scheduled to begin in fall 2016. This Section 404 permit application describes activities in the City’s, County’s and WisDOT’s project segments.

**Proposed Activities for Current Permit Application**

Key project design features that establish the physical impact footprint for the three project segments noted above are summarized below.

**Rolling Ridge Drive to Northview Road**

The proposed cross section between Rolling Ridge Drive and Northview Road will consist of four 12-foot-wide lanes[[1]](#footnote-1) with a cross slope of 2%, 6-foot-wide paved outside shoulders (4-foot-wide paved, 2-foot-wide gutter pan), 2-foot-wide inside shoulder (2-foot-wide gutter pan), and a raised median 24 feet wide[[2]](#footnote-2). The 24-foot-wide median includes the 2-foot-wide gutter pan, and a 0.5-foot curb head in each direction of travel and a 19-foot-wide grass median[[3]](#footnote-3).The proposed median width allows automobiles and larger vehicles to be sheltered from Meadowbrook Road traffic when waiting to cross the median at Woodridge Lane and Joanne Drive/Lancaster Drive.

On the west side of the road, the existing 5-foot-wide sidewalk will remain. The proposed 10-foot-wide multi-use trail will be typically located 8 feet off the east side of the reconstructed road.

The intersections along Meadowbrook Road will be redesigned to improve capacity and safety. The Rolling Ridge Drive and Northview Road intersections will remain signalized. The other two intersections will be two-way stop controlled.

In addition to the roadway work, two dry stormwater ponds are planned. One is located at approximately STA 362+00 to 363+00 RT, at the southeast corner of the reconstructed Woodridge Lane intersection. The second is located at approximately STA 348+75 to 349+75 RT, at the northeast corner of the reconstructed Lancaster Drive intersection. The dry ponds will receive the discharge from storm sewers in this segment. If the City of Waukesha constructs the flood mitigation project described in the Project Information section, it would eliminate the need for the dry ponds.

**Northview Road to Sunset Drive**

The proposed cross section between Northview Road and Sunset Drive will consist of four 12-foot-wide lanes[[4]](#footnote-4) with a cross slope of 2%, 9.83- to 10-foot-wide outside shoulders (8-foot-wide paved, 2-foot-wide unpaved in rural sections and 8-foot-wide paved, 1.83-foot-wide gutter pan in urban sections), 5.83-foot-wide inside shoulders (4-foot-wide paved, 1.83-foot-wide gutter pan), and a raised median 30 feet wide[[5]](#footnote-5). The 30-foot-wide median includes a 5.83-foot-wide inside shoulder and gutter pan, a 0.67-foot curb head in each direction of travel and a 17-foot-wide grass median[[6]](#footnote-6).

From Northview Road to Kame Terrace, there will be an 8-foot-wide terrace with a 5-foot-wide sidewalk on the outside southbound lane of reconstructed Merrill Hills Road where there is curb and gutter. The curb and gutter (urban section) will extend from about the Meadowbrook Corner Pump Gas Station (STA 287+46.75) to the north end of the project. South of the gas station, where there is a rural shoulder, there will be a 21-foot to 27-foot-wide ditch, with a 5-foot-sidewalk. Between Kame Terrace and Sunset Drive, WisDOT will grade for a sidewalk, but not construct it.

On the east side of reconstructed Merrill Hills Road, the existing ditch and multi-use trail would remain between Northview Road and Summit Avenue. Between Summit Avenue and Sunset Drive, the proposed 10-foot-wide multi-use trail will be located 8 feet off the east side of the reconstructed road when there is curb and gutter and 30 feet off the east side of the reconstructed road where there is a rural shoulder. The reconstructed road will pass over the Glacial Drumlin State Trail. A box culvert will carry the trail under the new roadway. A connection from the proposed multi-use path on the east side of Merrill Hills Road will be constructed to the Glacial Drumlin State Trail.

The intersections along Meadowbrook Road and Merrill Hills Road will be redesigned to improve capacity and safety. The Summit Avenue intersection will remain signalized and a signal will be added at the Madison Street intersection. All other intersections will be two-way stop controlled. MacArthur Road would be extended to the new off-alignment Merrill Hills Road. Cul-de-sacs will be constructed along existing Merrill Hills Road north and south of the two locations where the preferred alternative will cross the existing road.

In addition to the roadway work, the 48-inch pipe culvert at the unnamed tributary to Pebble Creek south of Northview Road will be extended to the west. The double pipe culvert for the unnamed tributary to Pebble Creek south of Madison Street will be replaced with a 2-cell box culvert, with each cell being 82-inches wide by 67-inches tall, in the approximate existing location to maintain current hydrology. More information about the new pipe culvert and box culvert is found in the Waters of the U.S. subsection. The triple pipe culvert that carries Pebble Creek under Meadowbrook Road just north of Summit Avenue will be extended approximately 190 feet to the west. The triple pipe culvert that carries Pebble Creek under Summit Avenue west of the Meadowbrook Road intersection will be extended approximately 40 feet to the north and 45 feet to the south. A dry stormwater pond is planned about 1,500 feet south of Northview Road (STA 324+50 to 326+25 RT) on the east side of Meadowbrook Road, about 150 feet from the proposed alignment. The dry storm water pond will receive discharge from the storm sewers.

Two new structures will be constructed at STA 178+25 to 180+25 over Pebble Creek west of the existing Pebble Creek bridge on Merrill Hills Road, one for the northbound lanes and one for the southbound lanes. The new structures would not have piers in Pebble Creek and would be wide enough to accommodate wildlife crossing under the bridge. The proposed structure design will be determined in the final design process.

**Sunset Drive to WIS 59/County X Intersection**

The proposed cross section between Sunset Drive and the WIS 59/County X intersection will consist of four 12-foot-wide lanes with a 2% typical cross slope, 10-foot-wide outside shoulders (8-foot-wide paved, 2-foot-wide unpaved), and a concrete barrier median designed to minimize wetland impacts. The 14-foot-wide median includes the 6-foot-wide inside shoulder in each direction of travel and the 2-foot-wide concrete barrier. WisDOT’s standards for travel lane, shoulder and median width are the same as noted in the Northview Road to Sunset Drive segment. See footnotes 4 through 6 on the previous page.

The proposed roadway would cross Sunset Drive about 1,400 feet east of the existing Merrill Hills Road/Sunset Drive intersection. The proposed intersection with Sunset Drive will be signalized. There will be no intersections between Sunset Drive and the proposed WIS 59/County X intersection along the Pebble Creek corridor.

Between Sunset Drive and the Hawthorne Hollow cul-de-sac, drains would be installed as needed to allow groundwater in the wooded hillside to continue to flow toward the Pebble Creek wetland complex. A culvert will be installed to carry drainage from a subdivision pond and groundwater discharge near the cul-de-sac to the Pebble Creek wetland complex. To minimize impacts to a wetland complex (Wetland 4), WisDOT will construct a 250-foot land bridge to span most of Wetland 4.

WisDOT will construct a new signalized intersection with County X and WIS 59 about 375 feet north of the existing intersection. The new intersection would not include Saylesville Road, the south leg of the existing intersection. Instead, Saylesville Road would be rerouted to intersect WIS 59 west of the County X/WIS 59 intersection. County X would be improved to a 4-lane divided roadway from just north of the Pebble Creek Bridge to the proposed intersection. The County X improvement will include two new bridges over Pebble Creek. The bridges will be designed to accommodate wildlife passage beneath the structure.

To minimize wetland impacts, no multi-use path or sidewalks are proposed in the Pebble Creek corridor south of Sunset Drive. Bicyclists would be accommodated in the 8-foot paved shoulder. However, on-road bicycle accommodations consisting of a minimum 5-foot-wide paved shoulder will be provided on all reconstructed portions of WIS 59, County X, and Saylesville Road. No off-road bicycle accommodations will be provided at these locations. New sidewalks will be constructed on portions of WIS 59, County X and Saylesville Road.

Road runoff in this segment will be treated with grass swales (ditches) and sediment traps at seven outfalls. Three sediment traps and outfalls will be located south of Sunset Drive, one will be located at the Sunset Drive intersection, two will be located south of the proposed MacArthur Road intersection and one will be located south of the Madison Street intersection. WisDOT is also considering constructing one or more small dry ponds. The decision whether to use dry ponds will be made during the final design phase.

**WETLAND PERMIT ACTIVITIES**

**Wetland Delineations**

SEWRPC wetland biologists performed wetland delineations on 32 wetlands in the project area in late summer and fall 2011 and spring 2012. A copy of SEWRPC’s wetland report is found on the CD at the back of the project’s Final EIS. The 2011/2012 wetland delineations identified the following wetland types: fresh (wet) meadow, riparian forested wetland, shallow marsh and southern wet to wet-mesic hardwoods, and shrub-carr and southern sedge meadow. The larger wetland complexes associated with Pebble Creek in the southern part of the project area are a mosaic of wetland types. The wetlands south of Sunset Drive are generally of higher quality, but some of that high quality wetland does extend immediately north of Sunset Drive.

SEWRPC also assessed the function and value of delineated wetlands using a Rapid Assessment methodology. The wetland functions and values were evaluated for floristic diversity, wildlife habitat, fishery habitat, flood and stormwater attenuation, water quality protection, shoreline protection, groundwater, aesthetics, recreation and education. A copy of SEWRPC’s functional assessment of wetland values is found on the CD at the back of the Final EIS.

**Wetland Impacts**

The wetland impacts in this subsection are provide for each of the three construction projects. The type of wetlands affected in each of the three construction projects and their locations are found in Table 6 below. Additional wetland impact information, the location of wetlands in Table 6 and figures showing the preferred alternative’s impact on the wetlands in Table 6 are found in Appendix A.

**City of Waukesha** (Meadowbrook Road between Rolling Ridge Drive and Northview Road*)*

**Wetland Impact total - 0.003 acre**. The preferred alternative would affect one wetland (W-32).

**Waukesha County** (Meadowbrook Road and Merrill Hills Road segment between Northview Road and Fiddlers Creek Drive, Construction I.Ds 2788-00-72 & 2788-02-70*)*

**Wetland Impact total – 1.90 acres.** The preferred alternative would affect seven wetlands (W-24 through W-31).

**WisDOT** (WIS 59/County X to Fiddlers Creek Drive [600 feet north of Madison Street] Construction project I.D. 2788-00-71)

**Wetland Impact total – 13.25 acres**. The preferred alternative would affect 21 wetlands (W-23 through W-1).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Table 6 – Wetland Impacts*** | | | | | | | | | | |
| ***Exhibit #*** | | | **SEWRPC** | **Long/Latitude** | **Station** | **Type** | **Impact** | **Debit**  **W Type** | **Ratio** | **Debit** |
|  |  | | | | | | | | | |
|  | ***City of Waukesha – 2788-01-00 (For Information Only – Separate permit and banking)*** | | | | | | | | | |
| *A2-2* | | *32* | | Lat:43.0424; Lon:88.2854 | NB Proposed Bypass  361+86 – 362+04 RT | SM, M | 0.003 |  | NA | NA |
|  |  | | | | | | | | | |
|  | ***Waukesha County – Project I.D.’s 2788-00-00/70; 2788-00-02/72*** | | | | | | | | | |
| *A3-2 Figure 1* | | *31* | | Lat.43.0318;Lon:-88.2859 | Proposed W Bypass  322+32-325+41 LT/RT | RPF -  Hardwood | 0.210 | M – Cull  (ADID) | 1.5 | 0.32 |
| *A3-2 Figure 2* | | *29* | | Lat:43.0224;Lon:-88.2863 | Bypass 288+36-290+22 LT  US18 43+96-46+20 LT/RT | RPF-  Hardwood | 0.395 | M – Cull  (ADID) | 1.5 | 0.59 |
| *A3-2 Figure 2* | | *28* | | Lat:43.0219;Lon:-88.2860 | SB Proposed W Bypass  286+98-288+13 LT | SM | 0.038 | M – Cull  (ADID) | 1.0 | 0.04 |
| *A3-2 Figure 3* | | *27* | | Lat:43.0195;Lon:-882853 | NB Proposed W Bypass  274+81-281+02 RT | WS  SS  SM | 0.352  0.352  0.196 | M – Cull  (ADID) | 1.2  1.2  1.0 | 0.42  0.42  0.20 |
| *A3-2 Figure 3* | | *26* | | Lat:43.0199;Lon:-88.2861 | SB Proposed W Bypass  279+34-280+63 LT | SM  M | 0.118  0.013 | M –Cull  (ADID) | 1.0  1.0 | 0.12  0.01 |
| *A3-2 Figure 3* | | *25* | | Lat:43.0175;Lon:-882857 | NB Proposed W Bypass  270+67-271+32 RT | WS | 0.083 | M – Cull  (ADID) | 1.2 | 0.10 |
| *A3-2 Figure 3* | | *24* | | Lat:43.0173;Lon:-882861 | SB Proposed W Bypass  269+50-270+55 LT | WS | 0.137 | M – Cull  (ADID) | 1.2 | 0.16 |
| ***Totals*** | | | |  |  |  | **1.90** |  |  | **2.38** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Table 6 – Wetland Impacts*** | | | | | | | | | |
| ***Exhibit #*** | | ***SEWRPC*** | **Long/Latitude** | **Station** | **Type** | **Impact** | **Debit W Type** | **Ratio** | **Debit** |
|  |  | | | | | | | | |
|  | ***Wisconsin DOT – Project I.D.’s Design*** ***2788-00-01, Construction I.D. 2788-00-71*** | | | | | | | | |
| *A4-2 Figure 1* | | *23* | Lat:43.0105;Lon:-88.2864 | NB Proposed W Bypass  244+85-245+56 RT | RPF -  Hardwood | 0.020 | M – Cull  (ADID) | 1.5 | 0.03 |
| *A4-2 Figure 1* | | ***22 (ADID)*** | Lat:43.0127;Lon:-88.2864 | SB Proposed W Bypass  243+57-252+68 LT | Meadow  SM | 0.123  1.107 | M – Cull  (ADID) | 1.0  1.0 | 0.12  1.11 |
| *A4-2 Figure 2* | | *21* | Lat:42.9960;Lon:-88.2906 | MacArthur Rd  51+82-55+22 | Farmed  wetland | 0.280 | M – Cull  (ADID) | 1.0 | 0.28 |
| *A4-2 Figure 2* | | *20* | Lat:42.9962;Lon:-88.2924 | NB Proposed W Bypass  188+02-188+81 RT | Farmed  wetland | 0.010 | M – Cull  (ADID) | 1.0 | 0.01 |
| *A4-2 Figure 2* | | *19* | Lat:42.9963;Lon:-88.2915 | MacArthur Rd  51+82-55+22 | SM  SS | 0.144  0.016 | M – Cull  (ADID) | 1.0  1.2 | 0.15  0.02 |
| *A4-2 Figure 2* | | *18* | Lat:42.9955;Lon:-88.2916 | NB Proposed W Bypass  185+48-186+73 RT | M | 0.180 | M – Cull  (ADID) | 1.0 | 0.18 |
| *A4-2 Figure 3* | | ***17 (ADID)*** | Lat:42.9947;Lon-88.2910 | Proposed W Bypass  183+43-176+67 | M  SM | 0.855  0.095 | M – Ryan  (ADID) | 1.0  1.0 | 0.86  0.10 |
| *A4-2 Figure 3* | | ***16 (ADID)*** | Lat:42.9942;Lon:-88.2906 | Proposed W Bypass  183+43-176+67 | M  RPE  Opnwater | 0.360  0.180  0.060 | M – Ryan  (ADID) | 1.0  1.3  1.0 | 0.36  0.23  0.06 |
| *A4-2 Figure 3* | | ***15 (ADID)*** | Lat:42.9935;Lon:-88.2892 | NB Proposed W Bypass  175+20-176+41 | RPF  (SS,SM) | 0.110 | M – Cull  (ADID) | 1.5 | 0.17 |
| *A4-2 Figure 4* | | ***14 (ADID)*** | Lat:42.9931;Lon:-88.2891 | NB Proposed W Bypass  171+99-174+89 | Wet Mesic  Prairie | 0.350 | M – Ryan  (ADID) | 1.0 | 0.35 |
| *A4-2 Figure 4* | | ***13 (ADID)*** | Lat:42.9925;Lon:-88.2881 | Proposed W Bypass  165+41-172+45 | Farmed  wetland | 1.180 | Fen  (ADID) | 1.0 | 1.18 |
| *A4-2 Figure 4* | | ***12 (ADID)*** | Lat:42.9899;Lon:-88.2846 | Bypass 154+06-161+75  WB Sunset 52+12-53+19 | Farm wet  M | 2.00  0.50 | M – Ryan  (ADID) | 1.0  1.0 | 2.00  0.50 |
| *A4-2 Figure 5* | | ***11 (ADID)*** | Lat:42.9888;Lon:-88.2822 | WB Sunset  54+18-63+00 | WS  SS  SM  RPF | 0.310  0.300  0.150  0.150 | Fen  (ADID) | 1.2  1.2  1.2  1.5 | 0.37  0.36  0.18  0.23 |
| *A4-2 Figure 5* | | ***9 (ADID)*** | Lat:42.9884;Lon:-88.2823 | EB Sunset Drive  52+96-63+00 | RPF  M  SS  WS | 0.392  0.392  0.098  0.098 | Fen (ADID) | 1.5  1.2  1.2  1.2 | 0.59  0.47  0.12  0.12 |
| *A4-2 Figure 5* | | ***8 (ADID)*** | Lat:42.9882;Lon:-88.2834 | NB Proposed W Bypass  149+32-152+08 | **Fen** | **0.350** | **Fen (ADID)** | **1.0** | **0.35** |
| *A4-2 Figure 6* | | ***7 (ADID)*** | Lat:42.9869;Lon:-88.2819 | NB Proposed W Bypass  141+83-147+06 | M  WS | 0.140  0.060 | Fen (ADID) | 1.2  1.2 | 0.17  0.07 |
| *A4-2 Figure 6* | | ***5 (ADID)*** | Lat:42.9848;Lon:-88.2800 | NB Proposed W Bypass  132+79-135+54 | WS | 0.340 | M – Ryan  (ADID) | 1.2 | 0.41 |
| *A4-2 Figure 6* | | ***4 (ADID)*** | Lat:42.9834;Lon:-88.2788 | Proposed Bypass  125+27-130+52 | WS  SM | 0.678  0.452 | Fen (ADID) | 1.2  1.2 | 0.81  0.54 |
| *A4-2 Figure 7* | | ***3 (ADID)*** | Lat:42.9824;Lon:-88.2720 | NB Genesee Rd.  60+91-61+80 RT | M | 0.004 | Fen  (ADID) | 1.2 | 0.01 |
| *A4-2 Figure 7* | | ***1 (ADID)*** | Lat:42.9814;Lon:-88.2740 | Bypass 112+29-117+24  SB Genesee. 55+85-57+56 | RPE  M  SM | 1.144  0.308  0.308 | Fen (ADID) | 1.3  1.2  1.2 | 1.49  0.37  0.37 |
| ***Totals*** | | |  |  |  | **13.25** |  |  | **14.74** |
| ***Bypass Totals*** | | |  |  |  | **15.15** |  |  | **17.12** |
| ***Mitigation Debits: Cull Parcel(ADID) 4.45 acres; Ryan parcel (ADID) 4.87; Fen (ADID) 7.36 acres*** | | | | | | | | | |

**Wetland Avoidance/** **Minimization**

**Wetland Avoidance**

Because there are segments of the preferred alternative and other reasonable Build Alternatives along County TT and Sunset Drive where there are wetlands/wetland complexes adjacent to the roads and, in places, on both sides of the roads, it is not possible to avoid wetland impacts completely. Additional capacity provided by the preferred alternative is needed to improve mobility, traffic flow and safety.

Although alignments south of Sunset Drive were considered during the corridor study (for example, the Golf Course East Alternative) that avoided wetland impacts, they did not sufficiently address purpose and need or had other impacts or engineering issues deemed unacceptable. Alignments with notable wetland impacts, such as the historically mapped route adjacent to Pebble Creek were eliminated from further consideration (see Final EIS Section 2). The No Build Alternative would avoid wetland impacts, however, this alternative is not a viable course of action because it would fail to address purpose and need.

**Minimize Wetland Impacts**

Minimizing potential wetland impacts was a major focus throughout the corridor study and preliminary design process. Due to the preferred alternative’s proposed capacity expansion, which for a portion of the road utilizes the horizontal alignment of the existing roadway, avoidance of wetland impacts was not a feasible option. However, design modifications helped reduce the footprint of this proposed project on wetlands.

Minimizing wetland impacts was a factor in developing and screening of the preliminary alternatives. The Build Alternatives described in Section 2, including the preferred alternative (Pebble Creek West), incorporated alignment shifts where practicable to minimize impacts to wetlands. Wetland minimization measures are described in Table 7 below by construction project.

| ***Table 7 - Potential Wetland Minimization Measures*** | | | |
| --- | --- | --- | --- |
| **Wetland No.** | **Exhibit No.** | **Station Location** | **Avoidance/Minimization Measures** |
| **City of Waukesha Project – Rolling Ridge Drive to Northview Road** | | | |
| 32 | A2-2 | 361+86 to 362+04 Waukesha Bypass | No avoidance/minimization alternative |
| **Waukesha County Project – Northview Road to Fiddler’s Creek Drive** | | | |
| 31 | A3-2 Figure 1 | 322+32 to 325+41 Waukesha Bypass | Steepened side slopes to 3:1 |
| 29 | A3-2 Figure 2 | 288+36 to 290+22 Waukesha Bypass  43+96 to 46+20 Summit Ave | Steepened side slopes; Off of Bypass – 3:1/ Off of Summit Ave – 3:1 |
| 28 | A3-2 Figure 2 | 286+98 to 288+13 Waukesha Bypass | Steepened side slopes;  Rural - 4:1/Urban –3:1 |
| 27 | A3-2 Figure 3 | 274+81 to 281+02 Waukesha Bypass  51+37 to 53+07  Summit Ave | Steepened side slopes to 3:1 |
| 26 | A3-2 Figure 3 | 279+34 to 280+63  Waukesha Bypass | Steepened side slopes to 4:1 |
| 25 | A3-2 Figure 3 | 270+67 to 271+32  Waukesha Bypass | Steepened side slopes to 3:1 |
| 24 | A3-2 Figure 3 | 269+50 to 270+55  Waukesha Bypass | Steepened side slopes to 3:1 |
| **WisDOT Project – Fiddler’s Creek Drive to WIS 59** | | | |
| 23 | A4-2 Figure 1 | 244+85 to 245+56 Waukesha Bypass | Steepened side slopes to 3:1 |
| 22 (ADID wetland) | A4-2 Figure 1 | 243+57 to 252+68 Waukesha Bypass | Steepened side slopes to 3:1 |
| 21 | A4-2 Figure 2 | 51+82 to 55+22  MacArthur Road | Steepened side slopes to 2.5:1 |
| 20 | A4-2 Figure 2 | 188+02 to 188+81 Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 19 | A4-2 Figure 2 | 51+82 to 55+22 MacArthur Road | Steepened side slopes to 2.5:1 |
| 18 | A4-2 Figure 2 | 185+48 to 186+73 Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 17 (ADID wetland) | A4-2 Figure 3 | 183+43 to 176+67 Waukesha Bypass | Steepened side slopes to 3:1 |
| 16 (ADID wetland) | A4-2 Figure 3 | 183+43 to 176+67 Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 15 (ADID wetland) | A4-2 Figure 3 | 175+20 to 176+41 Waukesha Bypass | Steepened side slopes to 3:1 |
| 14 (ADID wetland) | A4-2 Figure 4 | 171+99 to 174+89 Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 13 (ADID wetland) | A4-2 Figure 4 | 165+41 to 172+85 Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 12 (ADID wetland) | A4-2 Figure 4 | 155+54 to 161+75  Waukesha Bypass | Steepened side slopes to 2.5:1 |
| 11 (ADID wetland) | A4-2 Figure 5 | 154+06 to 154+66  Waukesha Bypass  52+12 to 63+00  Sunset Drive | Steepened side slopes to 3:1 along Sunset Drive, 2.5:1 along bypass |
| 9 (ADID wetland) | A4-2 Figure 5 | 52+96 to 63+00  Sunset Drive | Steepened side slopes to 3:1 |
| 8 (ADID wetland) | A4-2 Figure 5 | 149+32 to 152+08  Waukesha Bypass | Steepened side slopes to 2.5:1; Barrier median narrowed the width of the preferred alternative;  Eliminated proposed off road multi-use path and sidewalk |
| 7 (ADID wetland) | A4-2 Figure 6 | 141+83 to 147+06 Waukesha Bypass | Steepened side slopes to 3:1; Barrier median narrowed the width of the preferred alternative; Eliminated proposed off road multi-use path and sidewalk |
| 6 (ADID wetland) | A4-1 Figure 2 | 141+41 to 141+98  Waukesha Bypass | No impact |
| 5 (ADID wetland) | A4-2 Figure 6 | 132+79 to 135+54  Waukesha Bypass | Steepened side slopes to 2.5:1; Barrier median narrowed the width of the preferred alternative; Eliminated proposed off road multi-use path and sidewalk |
| 4 (ADID wetland) | A4-2 Figure 6 | 125+27 to 130+52 Waukesha Bypass | Steepened side slopes to 2.5:1; Proposed land bridge will avoid placing fill in the wetland; Barrier median narrowed the width of the preferred alternative; Eliminated proposed off road multi-use path and sidewalk |
| 3 (ADID wetland) | A4-2 Figure 7 | 60+91 to 61+80 Genesee Road | Steepened side slopes to 2.5:1 |
| 1 (ADID wetland) | A4-2 Figure 7 | 112+29 to 117+24 Waukesha Bypass  50+00 to 57+56 Genesee Road | Steepened side slopes to 3:1; Barrier median narrowed the width of the preferred alternative; Eliminated proposed off road multi-use path and side road |

Beyond the specific wetland minimization measures within WisDOT’s segment of the project, Waukesha County, WisDOT and the City of Waukesha will investigate measures in the final design phase to minimize wetland impacts throughout the corridor, such as keeping roadway sideslopes as steep as practicable and using equalizer pipes to maintain wetland hydrology.

Waukesha County, WisDOT and the City of Waukesha will apply best management practices during construction to further minimize wetland impacts. The best management practices would include measures such as protecting adjacent wetlands with silt fence outside of the wetland boundaries prior to earth disturbing activities, restoring fill slopes adjacent to wetlands with seed and erosion control matting soon after final grading, and employing other erosion control measures to minimize sedimentation and siltation into adjacent wetlands. In addition, stormwater runoff from impervious surfaces will be collected and conveyed to dry ponds or treated by other means prior to discharge to a wetland or stream.

**Mitigation**

*Karla Leithoff will submit this section directly to the Army Corp of Engineers this week.*

**WATERS of U.S. PERMIT ACTIVITIES**

Stream crossing activities within the WisDOT and Waukesha County project segments are summarized below. There are no stream crossings in the City of Waukesha segment. Stream crossings include the expanded County X bridge over Pebble Creek, the new bridge over Pebble Creek west of the existing Merrill Hills Road bridge, the box culvert carrying an unnamed tributary to Pebble Creek under the preferred alternative south of Madison Street, the extended culvert pipes carrying Pebble Creek under Meadowbrook Road and Summit Avenue, and the extended culvert pipe carry an unnamed tributary to Pebble Creek under Meadowbrook Road south of Northview Road. Table 8 describes the project’s impacts to Waters of the U.S., and Table 9 includes information about culverts conveying Waters of the U.S. and other drainages in the preferred alternative corridor. The location of the Waters of the U.S. and the culvert pipes discussed in Tables 8 and 9 are shown in the design sheets in Appendix A.

**WisDOT Segment (Project I.D. 2788-00-71)**

The proposed County X improvements will replace the existing County X bridge with two new bridges over Pebble Creek. The existing County X structure (B-67-038) over Pebble Creek is a 1-span prestressed concrete girder structure with an overall length of 58 feet and a deck width of 44 feet. The existing structure does not have in-stream piers. The proposed northbound structure (B-67-314) will be a single span prestressed concrete girder structure with no instream piers. The new structure will be approximately 44 feet wide to accommodate the wider roadway. The proposed southbound structure (B-67-315) will be a single span prestressed concrete girder structure with no instream piers. The new structure will be approximately 44 feet wide to accommodate the wider roadway. The length of the northbound and southbound structures will be determined during the upcoming final design phase. The structures will be designed so that they can accommodate a wildlife crossing adjacent to Pebble Creek. The proposed structure design will be refined in the final design process.

At this point in the design process, no fill material (granular fill or riprap) is expected to be placed below the ordinary high water mark (OHWM) during construction of the new northbound and southbound structures. This issue will be resolved during the final design phase.

Two new structures will be constructed at STA 178+25 to 180+25 over Pebble Creek west of the existing Pebble Creek bridge on Merrill Hills Road, one for the northbound lanes and one for the southbound lanes. The design of the proposed northbound structure (B-67-354) and southbound structure (B-67-355) will be determined during the upcoming final design phase. The structures will be designed so they can accommodate a wildlife crossing adjacent to Pebble Creek. The proposed structure design will be refined in the final design process.

During the final phase, WisDOT will determine whether fill material (granular fill or riprap) will be placed below the OHWM during construction of the new northbound and southbound structures.

The double pipe culvert for the unnamed tributary to Pebble Creek south of Madison Street will be replaced with a 200-foot-long 2-cell box culvert, with each cell being 82-inches wide by 67-inches tall, in the approximate existing location to maintain current hydrology (Table 9). To accommodate the wider roadway, the proposed box culvert would be extended to the west beyond the limits of the existing pipe culvert. It is likely that equipment would be placed in the stream channel to remove the existing pipe culvert and construct the box culvert. Some method of dewatering the construction area would likely be required, even when streamflow is lowest. The potential area of disturbance to the stream bed of the unnamed tributary to Pebble Creek and quantity of fill below the OHWM will be determined during the final design phase.

**County Segment (Project I.D.’s 2788-00-72 & 2788-02-70)**

The triple pipe culvert that carries Pebble Creek under Meadowbrook Road just north of Summit Avenue will be removed and replaced with a new triple culvert pipe that will be extended approximately 190 feet to the west of the existing culvert (Table 9). The triple pipe culvert that carries Pebble Creek under Summit Avenue west of the Meadowbrook Road intersection will also be removed and replaced with a new triple culvert pipe that will be extended approximately 40 feet to the north and 45 feet to the south. Because the pipe culverts that convey Pebble Creek are triple culverts it may be possible to divert flow into one pipe while the others are extended. Regardless of how the construction area is dewatered, some temporary damming of the stream may be required. Some amount of channel grading is expected to occur upstream and downstream of the proposed culvert pipe extensions to accommodate the proposed configuration. In addition, equipment would be used in the stream channel to remove and replace the triple pipe culvert. The potential area of disturbance to the Pebble Creek and quantity of fill below the OHWM will be determined during the final design phase.

In addition, the 48-inch culvert pipe at the unnamed tributary to Pebble Creek south of Northview Road will be extended about 80 feet to the west of the existing culvert (Table 9). The extension would be in the same location to maintain stream flow. As with the culvert pipe extension along Pebble Creek, the construction area may be dewatered in some manner. Some amount of channel grading will likely occur to accommodate the proposed configuration, and equipment may be used in the stream channel to extend the proposed culvert pipe.

The potential area of disturbance to the stream bed of the unnamed tributary to Pebble Creek and quantity of fill below the OHWM will be determined during the final design phase.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Table 8 - Waters of the U.S. Impacts\** | | | | |
| Waters of the U.S. | Creek/Tributary below OHWM | Fill/Type (acre) | Debit Ratio | Debit |
| Area 1 (unnamed tributary to Pebble Creek south of Northview Road) | Sta. 323+45, 34’ L Center  Waukesha Bypass | X.XX acres (X.XX CY/LF)   **Aquatic bed** |  |  |
| Area 2 (Pebble Creek – Meadowbrook Road crossing) | Sta. 290+13, 45’ L Center  Waukesha Bypass | X.XX acres (X.XX CY/LF) **Aquatic bed** |  |  |
| Area 3 (Pebble Creek – Summit Avenue crossing) | Sta. 44+29, 44’ R Center  Sta. 44+76, 48’ L Center  Summit Avenue | X.XX acres (X.XX CY/LF) **Aquatic bed** |  |  |
| Area 4 (unnamed tributary to Pebble Creek south of Madison Street | Sta. 244+52, 100’ L Center  Sta. 245+29, 90’ R Center  Waukesha Bypass | X.XX acres (X.XX CY/LF) **Aquatic bed** |  |  |
| Area 5 (new crossing of Pebble Creek north of Glacial Drumlin State Trail) | Sta 178+73, 49’ R Center  Sta. 179+37, 49’ L Center  Waukesha Bypass | X.XX acres (X.XX CY/LF) **Aquatic bed** |  |  |
| ***Total “Waters of the U.S.” Impacts \_\_ acres and Total Debit  \_\_ acres*** | | | | |

\* Project design of drainage structures is not complete enough to determine impacts

| ***Table 9 – Waukesha Bypass Culverts*** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **WAUKESHA BYPASS CROSS CULVERT PIPES** | | | | | | |
|  |  |  | **Diameter** | |  |  |
| **Wetland No.** | **Location** | **Length (ft)** | **Proposed** | **Existing** | Proposed Material | Remarks |
| 1 | 116+20 – WB  **WisDOT** | 240 | 2 – 42” | None | CPRC | Road on new alignment |
| 5 | 134+15 – WB  **WisDOT** | 175 | 30” | None | CPRC | Road on new alignment |
| None | 141+10 –WB  **WisDOT** | 175 | 2 – 36” | None | CPRC | Road on new alignment |
| 12 | 156+00 – WB  **WisDOT** | 270 | 48” | None | CPRC | Road on new alignment |
| 12 | 159+75 – WB  **WisDOT** | 240 | 24” | None | CPRC | Road on new alignment |
| 26 & 27 | 279+80 – WB  **County** | 190 | 30” | 15”[[7]](#footnote-7) | CPRC | Connects W-26 and W-27 |
| 29 | 290+00 – WB  **County** | 195 | 1 – 72”  2 – 48” | 1 – 72”  2 - 48” | CPRC | Culvert Extension – Pebble Creek |
| 31 | 323+45 – WB  **County** | 80 | 48” | 48” | Concrete | Culvert Extension -  Pebble Creek Tributary |
| 29 | 44+50 – Summit Ave  **County** | North – 40  South - 45 | 3 – 58” x 36” | 3 – 58” x 36” | Metal | Culvert Extension – Pebble Creek |
| **WAUKESHA BYPASS CROSS CULVERT BOX** | | | | | | |
|  |  |  | **Size** | |  |  |
| **Wetland No.** | **Location** | **Length (ft)** | **Proposed** | **Existing** | **Proposed Material** | **Remarks** |
| 23 | 245+00  **WisDOT** | 200 | 2 Cells – 82” x 67” | 2 Pipes – 87” x 63” | Concrete | Pebble Creek Tributary |

Construction in or near waterways will be performed in accordance with WisDOT’s *Standard Specifications for Highway and Structures Construction* (WisDOT 2016)*.* Waukesha County’s and WisDOT’s best management practices to control erosion will be installed before erosion prone construction activities begin. Construction at stream crossings would be conducted during low or normal flow periods and comply with all federal and state laws, local ordinances, and regulations. WisDOT and Waukesha County will ensure that culvert extensions or replacements associated with the project are designed and constructed to ensure adequate passage of fish and other aquatic organisms at the crossings to help mitigate negative impacts associated with the project, consistent with FHWA Aquatic Organism Passage guidelines.

**ADDITIONAL BACKGROUND INFORMATION**

**ENVIRONMENTAL DOCUMENT SUMMARY**

As noted in the Agency Coordination subsection below, the Corps of Engineers and DNR agreed to be co-operating agencies, and the U.S. EPA, Southeastern Wisconsin Regional Planning Commission, and the City of Pewaukee agreed to be participating agencies for the West Waukesha Bypass Study. Cooperating and participating agencies were provided an opportunity to concur in project purpose and need, the range of alternatives considered in the Draft EIS, and the preferred alternative identified for the Final EIS.

* ***In November 2010, the Corps of Engineers concurred in project purpose and need and the U.S. EPA concurred in December 2010.***
* ***The City of Pewaukee concurred in the range of alternatives considered in May 2011. The Corps of Engineers and the U.S. EPA concurred in June 2012.***
* The Draft EIS was approved by FHWA on October 19, 2012. It was then distributed to state and federal review agencies and made available to the public. The Federal Register notice of availability was published on October 26, 2012. A public hearing was held on November 13, 2012.

***In March 2013, the DNR concurred in selection of the single alternative north of the Wisconsin & Southern Railroad and the Pebble Creek West Alternative south of the railroad as the preferred alternative. In May 2014, the Corps of Engineers and the U.S. EPA concurred.***

The Final EIS was approved by FHWA on September 11, 2014 and distributed to state and federal review agencies. The Federal Register notice of availability was published on September 19, 2014.

***The final Record of Decision (ROD) which completes the EIS process was approved by FHWA on January 20, 2015.*** Copies of the ROD were provided to the Corps of Engineers, DNR, and U.S. EPA because these agencies had comments on the Final EIS that were addressed/resolved in the ROD. Copies of FHWA approval sheets for the Draft EIS, Final EIS, and ROD are provided in **Appendix B.** Copies of all environmental documents are available at the WisDOT Southeast Region office and at Waukesha County Department of Public Works. As noted in the Agency Coordination subsection below, the Corps of Engineers and DNR agreed to be co-operating agencies, and the U.S. EPA, Southeastern Wisconsin Regional Planning Commission, and the City of Pewaukee agreed to be participating agencies for the West Waukesha Bypass Study. Cooperating and participating agencies were provided an opportunity to concur in project purpose and need, the range of alternatives considered in the Draft EIS, and the preferred alternative identified for the Final EIS.

* ***In November 2010, the Corps of Engineers concurred in project purpose and need and the U.S. EPA concurred in December 2010.***
* ***The City of Pewaukee concurred in the range of alternatives considered in May 2011. The Corps of Engineers and the U.S. EPA concurred in June 2012.***
* The Draft EIS was approved by FHWA on October 19, 2012. It was then distributed to state and federal review agencies and made available to the public. The Federal Register notice of availability was published on October 26, 2012. A public hearing was held on November 13, 2012.

***In March 2013, the DNR concurred in selection of the single alternative north of the Wisconsin & Southern Railroad and the Pebble Creek West Alternative south of the railroad as the preferred alternative. In May 2014, the Corps of Engineers and the U.S. EPA concurred.***

The Final EIS was approved by FHWA on September 11, 2014 and distributed to state and federal review agencies. The Federal Register notice of availability was published on September 19, 2014.

***The final Record of Decision (ROD) which completes the EIS process was approved by FHWA on January 20, 2015.*** Copies of the ROD were provided to the Corps of Engineers, DNR, and U.S. EPA because these agencies had comments on the Final EIS that were addressed/resolved in the ROD. Copies of FHWA approval sheets for the Draft EIS, Final EIS, and ROD are provided in **Appendix B.** Copies of all environmental documents are available at the WisDOT Southeast Region office and at Waukesha County Department of Public Works.

**SUMMARY OF KEY ENVIRONMENTAL FACTORS**

Key environmental factors, in addition to those discussed previously (wetlands, stream crossings, erosion control and stormwater management) are summarized below. More detailed information is available in Section 3 of the 2014 Final EIS.

**Land Use**

Land use between I-94 and Northview Road is dense residential development served by City of Waukesha services. Between Northview Road and Summit Avenue there are a mix of uses. East of Meadowbrook Road are single-family residences and a large multi-unit apartment complex. At the Summit Avenue intersection there is a commercial development anchored by a Sentry grocery store. West of Meadowbrook Road is a mix of single family residences and a large wooded area and farmland. Between Coldwater Creek Drive and Summit Avenue is a mix of commercial and institutional uses.

Between Summit Avenue and Madison Street land use is a mix of residential, institutional, commercial, and open space. South of Madison Street, land use transitions from mostly suburban residential with limited agricultural land and recreational open space to large blocks of agricultural land, recreational open space (Retzer Nature Center), and less dense residential development. Along the preferred alternative south of Sunset Drive, the land use is open space adjacent to Pebble Creek.

Future land use changes in the project area would be limited to agricultural land or undeveloped uplands according to land use plans. Planned land uses include suburban density residential development and a school campus on the farmland owned by the Waukesha School District.

**Residential and Business Displacements**

***Five residences, three north of the Wisconsin & Southern Railroad and two south of it, will be displaced. The preferred alternative will not displace any businesses.*** (Residential displacements will be fully compensated in accordance with state and federal relocation laws and regulations that provide for just compensation including acquisition price, replacement dwelling costs, moving expenses, and locating comparable residences.)

Any septic tanks, drain fields, or wells on acquired properties would be abandoned in accordance with state regulations and local zoning standards. Waukesha County will survey all buildings that will be demolished to determine whether asbestos or lead paint is present. All appropriate and applicable engineering and regulatory controls will be followed during the handling and disposal of asbestos-containing material and lead-based paint. Before a contractor demolishes a building that may contain or is known to contain asbestos, the contractor must notify DNR and the Wisconsin Department of Health and Family Services at least 10 working days before starting the work.

**Farmland**

Farming is a declining land use countywide. Within the project corridor, there is a limited amount of agricultural land immediately adjacent to County TT. There is agricultural land on the west side of County TT between Summit Avenue and Northview Road and on both sides of County TT between Madison Street and Sunset Drive. The preferred alternative would affect six farms and one property that grows trees and shrubs acquiring about 37 acres from the seven properties. It will also displace two farm residences. The displaced farm residences are located on the east side of County TT south of Madison Street. About half of the farmland would be acquired from one farm operation on the east side of County TT south of Madison Street (across from Kame Terrace) and in the northeast quadrant of the County TT/Sunset Drive intersection. Both parcels would be severed.

**Threatened and Endangered Species**

Information on threatened and endangered species that are or may be present in the West Waukesha Bypass study area was obtained from the U.S. Department of the Interior Fish and Wildlife Service (USFWS) website, DNR, SEWRPC, and Great Lakes Ecological Services, which conducted a review of rare reptiles for the project under contract to Waukesha County. Waukesha County also had its biologist (Mike Bourquin, Conservation Biologist) do a field survey in July 2013. The field survey located one state listed species, the seaside crowfoot *(plant) that was identified by SEWRPC while delineating wetlands south of the Wisconsin & Southern Railroad.*

*The full list of federal and state species that may be present in the project corridor (or have suitable habitat*) is found in Section 3.19 of the 2014 Final EIS. ***In May 2014, the USFWS indicated that the project would have no impact on the Poweshiek skipperling, a small butterfly. In June 2015, the DNR stated that the Northern Long-eared Bat would not be located in the project area.*** See Appendix C. ***During SEWRPC’s wetland delineations and Waukesha County’s field review, no federally-protected species were identified.***

In April 2014, a representative from the DNR Endangered Resources Program notified Waukesha County that effective January 2014, the Butler’s garter snake, Blanding’s turtle, Prairie Indian plantain and Yellow gentian were delisted from state threatened status and are now listed as species of special concern. ***The little brown bat uses a study-area bridge as a roosting site from mid-May through mid-September. The DNR Bureau of Endangered Resources also stated that they see no long-term impact to the little brown bat as a result of the project after construction is completed. With the exception of the seaside crowfoot (plant), which was located by SEWRPC and Waukesha County, and the little brown bat, which was located by SEWRPC, no other state-protected species were identified during field investigations.***

***To avoid potential impacts to state-protected fish and mussel species, WisDOT and Waukesha County will avoid in-stream work between March 15 and June 1 (dates may be modified in consultation with DNR).*** WisDOT and Waukesha County also will re-inspect the County TT and County X bridges over Pebble Creek during design. ***If swallow nests are present, no disturbance will be allowed between May 1 and August 30 of the construction year.*** If construction conflicts with the swallow nesting period, WisDOT will implement measures to avoid impacts or prevent swallows from nesting on the structures.

**Historic and Archeological Resources**

Archaeological investigations in the project area were coordinated in accordance with the Guidelines for Public Archaeology in Wisconsin, as revised. The project’s archaeological fieldwork survey report was concurred in the State Historic Preservation Office (SHPO) in June 2011. ***The archaeological fieldwork conducted in 2010 identified two archaeological sites. The preferred alternative would not affect either site.*** ***See Section 3.24 of the 2014 Final for more information.***

Historic properties were investigated to identify possible historically significant structures within the area of potential effect of the project area. ***Nine properties were surveyed, of which one is listed on the National Register (Sebina Barney House). Of the other eight a determination of eligibility was prepared for one (Ward Brown Farmstead), and the State Historic Preservation Office (SHPO) concurred that it is eligible for listing on the National Register.*** The other seven properties did not warrant determinations of eligibility. The State Historic Preservation Office (SHPO) determined the design of the only Build Alternative north of the railroad and the Pebble Creek Alternative, as presented in the Draft EIS would adversely affect both properties. ***Waukesha County and WisDOT redesigned the Build Alternative adjacent to the Ward Brown Farmstead such that FHWA and SHPO concurred there would be no impact to the historic integrity of the property.***

The Draft EIS design would not have displaced the ***Sabina Barney House***, however, it would have acquired 0.2 acre from the property. Waukesha County’s and WisDOT’s redesign of Saylesville Road adjacent to the property eliminated right-of-way acquisition, grading or other construction within the historic property boundary. ***In spite of the redesign, SHPO stated the expansion of Saylesville Road (County X) as part of the project would alter what remains of the rural historic character of the property. As mitigation for the adverse impact to the property Waukesha County and WisDOT shifted the alignment of Saylesville Road so it would not be as close to the Sebina Barney House as originally planned***. The design was also modified to preserve the owners’ ability to turn left into and out of their driveway. ***As further mitigation, SHPO, FHWA, WisDOT and Waukesha County have agreed to take photos to document the Sebina Barney House, provide vegetative screening and write a summary of the Waukesha County National Register-listed properties that do not already have a summary on SHPO’s website.***

**Park and Recreation Areas**

Section 3.26 of the Final EIS lists the park and recreation areas within the project area. ***The preferred alternative would affect two public parks, Kisdon Hill Park (0.8 acre) and Retzer Nature Center (0.4 acre) and Good Times Day Camp (0.03 acre), a private facility.***

***The preferred alternative will cross the Wisconsin & Southern Railroad at-grade.*** ***WisDOT will construct a box culvert under the proposed road to accommodate the Glacial Drumlin State Trail.*** Merrill Hills Road will no longer cross the trail; it would become a cul-de-sac on either side of the railroad tracks. ***Removing the road crossing from the Glacial Drumlin State Trail will improve safety for trail users and accomplish a long-standing DNR goal of eliminating the at-grade crossing.***

**Hazardous Materials**

***The preferred alternative between the north project terminus and the Wisconsin & Southern Railroad will affect three potentially contaminated sites recommended for further analysis.*** The sites include two residences and a gas station with underground storage tanks. Both railroad crossings (one existing, one former) are within this part of the project area. ***South of the railroad, the preferred alternative will affect one of the potentially contaminated sites recommended for further analysis, a former industrial site.*** Two residences will be relocated south of the railroad. Relocated buildings might have asbestos containing material (ACM), lead-based paint, mercury switches, polychlorinated biphenyls, fuel oil tanks, and other potentially hazardous materials.

***If further investigation indicates there would be involvement with contaminated soil during construction of the preferred alternative, the DNR and other affected parties will be notified of the results. Waukesha County and WisDOT will work with concerned parties to ensure disposition of any petroleum contamination to the satisfaction of the DNR, the WisDOT Environmental Services Section, and FHWA before acquisition of any questionable site, and before advertising the project for construction***. For removal of structures with ACM, the construction contract special provisions will include Standard Special Provision (STSP) 203-005 requiring ACM abatement under contract bid item 203.0210s.

**Noise**

***The West Waukesha Bypass project meets FHWA’s definition of a Type 1 project for the purpose of noise impact evaluation.*** Type 1 projects involve construction of a roadway on new location, substantial alteration of the horizontal alignment or vertical profile of an existing highway, or the addition of traffic lanes including through lanes and auxiliary lanes. Existing and future traffic noise for sensitive noise receptor locations (homes and public use lands) was modeled using FHWA’s Traffic Noise Model (TNM 2.5). The results of the noise analysis indicated noise impacts will occur in the I-94 to Summit Avenue segment. Seven noise receptors representing about 45 residences would experience a noise impact. In the Summit Avenue to railroad section two noise receptors representing 10 residences would experience a noise impact. No noise impacts would occur along the Pebble Creek West Alternative.

***Based on the noise analysis, WisDOT evaluated noise barriers along the corridor. WisDOT intends to incorporate feasible and reasonable noise barriers into the project.*** Four of the seven barriers evaluated meet the definition of feasible and reasonable. One barrier is located on the west side of Meadowbrook Road north of Northview Road, another is located near the apartment complex on the east side of Meadowbrook Road north of Summit Avenue. The other two barriers are located on both sides of Merrill Hills Road just north of Madison Street. A final decision on the installation of abatement measures will be made upon completion of final design and through the public involvement process, which will solicit the viewoints of residents and property owners benefitted by the construction of the feasible and reasonable noise barriers. The noise generated by construction equipment would vary greatly, depending on equipment type, duration of operation, and distance from adjacent development. Typical noise levels may occur in the 75 dBA to 95 dBA range at a distance of 50 feet. Adverse effects of construction noise will be localized and temporary in nature.

**Air Quality**

The road network in the project area is within Southeastern Wisconsin Intrastate Air Quality Control Region no. 239. Waukesha County is in attainment status for five of the six criteria pollutants, and was redesignated in April 2014 to a maintenance area for particulate matter (PM2.5). The project is included in the *Regional Transportation System Plan for Southeastern Wisconsin: 2035* (SEWRPC 2006) and SEWRPC’s 2013–2016 Transportation Improvement Program (SEWRPC 2012). SEWRPC, the region’s metropolitan planning organization, completed a regional conformity analysis for ozone and PM2.5.

***Based on the air quality analysis completed for the proposed improvements, the project will not contribute to any violation of the National Ambient Air Quality Standards, and Mobile Source Air Toxic emissions will decrease with the preferred alternative.***

**AGENCY COORDINATION**

Coordination with agencies during the West Waukesha Bypass study was done under environmental coordination procedures established in the 2005 federal transportation bill, SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users). Section 6002.

This process provided an opportunity for agencies, local officials and others to participate in the environmental review process by:

* ***Providing input on information*** being prepared for the environmental document, ***the need for the proposed improvements***, ***alternatives*** being considered, ***potential impacts***, ***mitigation***, and ***other environmental aspects***.
* This environmental process ***also provided an opportunity for agencies, local officials and others to become cooperating or participating agencies***. Cooperating and participating agencies were ***provided an opportunity to concur in project purpose and need***, the ***range of alternatives considered in the Draft EIS***, and ***the preferred alternative identified for the Final EIS***.
* The ***Corps of Engineers and DNR agreed to be cooperating agencies***, and the ***U.S. EPA, Southeastern Wisconsin Regional Planning Commission, and the City of Pewaukee agreed to be participating agencies***. FHWA invited 12 Native American tribes to participate in the study, however, no tribes responded. Key agency correspondence is found in Appendix C.

Waukesha County, WisDOT, and the project’s cooperating and participating agencies have continued to work together during the preliminary engineering design phase to ensure that impacts to natural resources have been avoided and minimized where practical.

**PUBLIC INVOLVEMENT**

Waukesha County, WisDOT and FHWA implemented an extensive public involvement program for the West Waukesha Bypass Corridor Study.

* ***Meetings were held*** with neighborhood, community, environmental, business and other stakeholder groups.
* ***Waukesha County used a community sensitive solutions (CSS) approach*** to assist in identifying transportation issues and concerns, environmental constraints, and other factors that should be considered in developing potential improvement alternatives.
* ***An advisory group was established at the outset of the study to engage a representative cross section of stakeholders in the decision-making process***.
* Five CSS workshops were held during preparation of the Draft EIS.
* ***Open house public information meetings were held*** in May, July and August 2010 and February 2011. A public hearing was held on November 13, 2012. Newsletters announcing the public information meetings were sent to local officials, elected officials, state and federal agencies, adjacent property owners, and other interests and stakeholders.
* ***Waukesha County issued press releases before each public information meeting. Information about the public information meetings and other project information was posted on Waukesha County’s web site at*** [***www.waukeshabypass.org***](http://www.waukeshabypass.org).
* Waukesha County also held numerous meetings with local officials during development and refinement of the alternatives and preparation of the EIS.

**STORMWATER AND EROSION CONTROL**

Erosion control and storm water management will be executed in accordance to Wisconsin Administration Code TRANS 401: Construction Site Erosion Control and Storm water Management for the State and County construction projects.  Erosion control and storm water management within the City of Waukesha project segment will follow requirements provided in Wisconsin Administrative Code Chapter NR 151 (Runoff Management).

Erosion control and storm water management measures proposed for this project include ditch checks, grass-lined flat bottom ditches, rock filter bed, erosion bales, temporary and permanent seeding, sod placement, silt fence, erosion mats, riprap, and inlet protection.

**Erosion Control Implementation Plan**

The construction contractor is required to prepare an Erosion Control Implementation Plan (ECIP) that includes erosion control commitments made in the project’s engineering design phase. The construction plans and contract special provisions must include the specific erosion control measures agreed on by WisDOT in consultation with DNR, who reviews the ECIP.

**Stormwater Management Plan**

Conceptual Stormwater management plans were prepared by Gremmer & Associates for the preferred alternative corridor.  One plan covered the South project (WisDOT- WIS 59/County X to 600 feet north of Madison Street) and the North project, Section 1 (County - 600 feet north of Madison Street to north of Northview Road).  The other plan covered the North Project, Section 2 (City).  South of Kame Terrace, the goal is to reduced post construction Total Suspended Solids (TSS) by 80 percent when compared to conditions with no runoff management. North of Kame Terrace, the goal is to reduce post construction TSS by 40 percent.

The objective of the overall stormwater management plan for the Waukesha Bypass is to control the quantity of runoff and enhance water quality by removing TSS. To accomplish this, roadway runoff will be directed to grass swales where possible, and dry stormwater ponds will be constructed to reduce peak runoff from the increased pavement areas.  Mainline storm sewer is used where grass swales are not accessible to the storm sewer outlets.  Interceptor ditches outside of the improved street/sidewalk are used to limit flow to the system and for operational icing concerns.

Stormwater facilities will also be designed to preserve existing drainage patterns to the extent practicable. Within this general framework, the following are project specific details affecting the design of the stormwater facilities:

   Stormwater ponds will generally be dry ponds due to planning concerns regarding thermal impacts to the receiving Pebble Creek.

   Considerations for a wet pond at STA 297+00 LT was evaluated but a flat-bottom treatment swale was used due to ROW constraints and proximity to a private stormwater pond.

    Storm sewer discharging in close proximity to wetlands will use outlet pipe sediment traps of a standard size as an effective means for small drainage areas with a limited footprint (minimal or no wetland impacts).

   In some locations, storm sewer was included when determined that swales would not fit within ROW constraints due to adjacent residences.

    Permanent ditch checks and catch basins (inlets with sumps) are not included within TSS; but will be evaluated for areas currently without treatment.

* Sections of roadway classified as "New" have a 2-year peak quantity (flow) requirement (from south project limit to Kame Terrace).  However, quantity control at pond locations will be implemented regardless of highway classification. In addition, outfall locations within the new road section will be evaluated for quantity control at individual outfalls (based on both quantity of water and receiving waterway – i.e. stream, farm field, municipal sewer, etc).

**CONSTRUCTION**

The West Waukesha Bypass project will widen County TT/Merrill Hills Road/Meadowbrook Road from Kame Terrace to Rolling Ridge Drive and be new alignment from WIS 59 to Kame Terrace. ***The project will be divided into three segments:***

* ***South Project; ID 2788-00-71 WisDOT (WIS 59/County X to 600 feet north of Madison Street)***; ***Construction scheduled for late 2016/2017***. Construction will be completed in four stages. In each stage, at least one lane of traffic will be provided for each direction along County TT/Merrill Hills Road. Some side roads are expected to have detours for portions of the construction project.
* ***North Project, Section 1; ID 2788-02-70/2788-00-72 WisDOT and Waukesha County (600 feet north of Madison Street to north of Northview Road)***; ***Construction scheduled for 2016***. Construction will be completed in four stages, in each stage one lane of traffic will be provided for each direction along County TT/Merrill Hills Road/Meadowbrook Road.
* ***North Project, Section 2; City of Waukesha Project (north of Northview Road to Rolling Ridge Drive)***; ***Construction scheduled for 2016***. Construction will be completed in four stages. In each stage one lane of traffic will be provided for each direction along County TT/Meadowbrook Road.

It should be noted that required side road improvements associated with the construction projects above will also be completed in stages.

Construction activities will include but are not limited to excavation, grading, paving, structure construction, storm sewer, culvert extensions, signals, lighting, pavement marking, and permanent signing.

1. Through this section, the minimum lane width is 11 feet, and the desirable lane width is 12 feet. (FDM 11-20 Attachment 1.1 Urban Design Class 4, Note 5 for NHS Routes and Arterials and Collectors that are not Federally Designated Truck routes if truck and bus volumes exceed an average of 300/lane/day for divided roadways) [↑](#footnote-ref-1)
2. FDM 11-20 Attachment 1.1 Urban Design Class 4 states the face-of-curb to face-of-curb width for each direction of the roadway must be a minimum of 28 feet and desirable 30-32 feet, when bike lanes are included. Face to face for each direction is currently 32’ (2 12-foot lanes, 2’ from face of curb to flange on each side, and an additional 4’ on the outside for the shoulder). [↑](#footnote-ref-2)
3. Minimum median width is 6 feet and the desirable is 14-30 feet (FDM 11-20 Attachment 1.1 Urban Design Class 4) [↑](#footnote-ref-3)
4. Through this section the desirable lane width for a posted speed of 45 mph is 12 feet, no minimum value is given. (FDM 11-20 Attachment 1.5, Design Class UA3) [↑](#footnote-ref-4)
5. FDM 11-20 Attachment 1.5, Design Class UA3 – (Developing Areas) desirable shoulder width 6-feet left, 10 feet right, Minimum – 1.8-feet left, 1.8-feet right [↑](#footnote-ref-5)
6. Minimum median width is 30 feet, no desirable values are given (FDM 11-20 Attachment 1.5, Design Class UA3). [↑](#footnote-ref-6)
7. There is an existing 15” CMCP connecting Wetlands 26 and 27 about 40 feet north of the proposed culvert. [↑](#footnote-ref-7)